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**Report of Expert Witness, Michael Cooley**

This report is being provided pursuant to Fed. R. Civ. Proc. 26(a)(2)(B). The required disclosures follow:

**(i) A complete statement of all opinions the witness will express and the basis and reasons for them.**

For the reasons discussed below it is my expert opinion that:

a) Mr. Andersson had a detailed electronic chart chip in the Garmin cockpit unit that included all areas of the vessel's voyage including Boca Chica, Dominican Republic;

b) The Raymarine unit had a slot for a chart chip, but there was no chip in the slot when we inspected the unit;

c) it is highly unlikely the Garmin chartplotter could have been destroyed by saltwater intrusion due to normal cockpit use including rain or splashing from waves;

d) it is more likely than not that, had the Garmin chartplotter become wet from rain or splashing waves, the unit could have been dried and the tracking data extracted from the unit's memory had the unit not been placed wet with salt water in a box and stored for over a year;

e) the marine surveyor's failure to safeguard the GPS data and/or remove the GPS from the vessel on or near the date of the inspection more likely than not resulted in the loss of the data in the Garmin GPS unit; and

f) furthermore, it is my opinion based upon my inspection and observation of the chip slot in the Garmin GPS unit that the unit contained a chart for Boca Chica harbor in the Dominican Republic and that the chart did not show a breakwater.

Langer Krell Marine Electronics was retained on Martin Andersson's behalf by his attorney to inspect the GPS chartplotter units from Andersson's vessel, Melody. The units were brought to our facility in sealed boxes shipped from the Dominican Republic. Joint inspections were conducted involving myself, Danny Guaraz, another Langer Krell technician, and a marine electronics technician retained by Andersson's insurance company.

The primary purpose of our inspection was to see if the units were still operational and whether the vessel's navigational history could be obtained, as well as to look at the installed charts and see if the breakwater in Boca Chica was on the charts.

The first inspection took place on April 1, 2021. The box contained two items: 1) a Foruno GP-31 GPS receiver and 2) a Garmin 721 xs GPS chartplotter. These items were listed on the vessel's pre-purchase survey and were forwarded to Andersson's lawyer from Mr. Shaun Farmer in the Dominican Republic in a box that was brought to us unopened. We opened the box and began the inspection with the Garmin GPS chartplotter. The housing of the Garmin unit was broken open. The internal components fell apart, apparently due to the effects of saltwater corrosion. The unit was not salvageable and its memory could not be accessed due to the damage. Since it could not be powered on, we went on to inspecting the Foruno unit.

I understand from Mr. Andersson's testimony the Garmin unit was installed in the cockpit of the vessel at the starboard helm station and was the primary GPS chartplotter used by Andersson for navigation. These units are water resistant and made to withstand a certain level of weather but are not fully waterproof. The technical specifications for the unit state that the waterproof rating to be IPX7. The unit could be submerged in one meter of water for up to 30 minutes without damage. Being splashed or rained on should not have caused the damage that

we saw, especially the unit's casing being broken open. It is possible the force of direct exposure to breaking waves could have caused the water intrusion that ultimately destroyed the unit, or it may have been damaged while being removed by the salvor, but I cannot opine on that without knowledge of the conditions from the time of the grounding until the unit was removed by Mr. Farmer. Had the unit been removed shortly after the incident, it is more likely than not that it could have been dried or the memory salvaged before corrosion set in.

Garmin units like this one record a track showing the vessel's navigation which is saved in the unit's internal memory. Mr. Andersson testified that he was tracking the voyage on the Garmin unit. Had the unit been removed from the vessel and preserved, its memory should have had a track showing where the boat had travelled as long as that feature was not turned off. The model usually comes pre-loaded with some set of charts in its memory. The information I have been provided does not state what charts were pre-loaded, if any. It was my understanding from Mr. Andersson's testimony that the Garmin chartplotter had the necessary charts for Andersson's planned voyage from Aruba to St. Maarten. Based on Mr. Andersson's testimony, the electronic charts installed in the Garmin unit covered the entire Caribbean. In addition to preloaded charts, this Garmin unit could utilize charts contained on a chip inserted in a slot in the unit.

At the time of the joint inspection no one looked for a chip in the Garmin unit, as the primary focus was to see if the unit was operational and if the navigational track could be recovered. In preparation for this report Mr. Guaraz and I looked in the Garmin's chart chip slot to see if there was a chip there and found a chip in the slot. Although it was difficult to remove due to the broken housing and corrosion damage to the Garmin unit, we were able to remove it

and insert it into a showroom unit whose memory had been cleared, and the chip was readable. The chip that was in the Garmin unit is a G2 Garmin chart, Southeastern Caribbean Supplemental Map Card #HXUS030R-Southeast Caribbean v2015.0v16.50. We established by looking at the chart that it did contain detailed information related to Boca Chica harbor in the Dominican Republic but it did not look like the newer Navionics chart. It showed two islands and detailed depth information to a minimum of 3 feet but did not show a breakwater. This chart looked different from the Navionics chart that we pulled up on a new showroom unit which shows a green swath in the area where the chart chip shows no depth information. Photographs from both joint inspections and of the removal of the chart chip and what we saw when the chip was inserted into the new Garmin unit with the memory cleared are attached.

The second item we inspected was the Foruno GP-31 GPS receiver. It is my understanding based upon the description of the electronics contained in the vessel's pre-purchase survey that the Foruno receiver was on the vessel in addition to a Raymarine E120 Chartplotter. The screen on the Foruno was not functional. This should not have affected the integrity of the Raymarine chartplotter. We were able to power the unit on and connect it to a computer but were not able to access any stored tracking data or to extract the data from the unit without risking deleting it. As the unit was used as a receiver only, or possibly not at all, it did not make sense to proceed further. Andersson's attorney contacted the salvor again with a request to look for the Raymarine E120 chartplotter which had not been originally received.

The Raymarine chartplotter was located by the salvor and forwarded, and a second joint inspection was held at our facility on April 22, 2021. Again, we received the item in an unopened box that had been shipped by Mr. Farmer to Andersson's attorney. It is my understanding the

Raymarine chartplotter was installed inside the cabin in the vessel's nav station along with the Foruno unit and did not get wet as a result of the grounding or later conditions. We were able to connect the Raymarine chartplotter to power and turn it on. The Raymarine chartplotter did not show any stored navigational tracks. It did contain some stored navigational routes, but none in the vicinity of Andersson's voyage between Aruba and the Dominican Republic, implying that the route for the voyage from Aruba to St. Maarten had not been plotted on that unit. The Raymarine unit had a universal chart providing basic information but did not provide detail for the Dominican Republic. We looked for, and did not find, a chart chip in the Raymarine unit.

**(ii) The facts or data considered by the witness in forming them.**

- Pre-purchase survey dated November 7, 2018;
- Physical units shipped from Dominican Republic: 1) a Foruno GP-31 GPS receiver and 2) a Garmin 721 xs GPS chartplotter; and 3) a Raymarine E120 Chartplotter;
- Mr. Andersson's deposition transcript;
- Documentation related to the Garmin 721;
- Photographs taken during the electronics inspections and personal attendance at the inspections.

**(iii) Any exhibits that will be used to summarize or support them.**

- Photographs taken during the inspections.
- The physical navigation units: 1) a Foruno GP-31 GPS receiver and 2) a Garmin 721 xs GPS chartplotter and the chart chip found inside; and 3) the Raymarine E120 Chartplotter.

**(iv) The witness's qualifications, including a list of all publications authored in the previous 10 years.**

I spent four years in the U.S. Marine Corps as an "Avionics Tech Helo," servicing and repairing jet-engine powered, ship-borne helicoptors. After my time in the military I earned a Bachelor of Science degree in electrical engineering from the University of Florida, graduating in 1986. My entire career has been in the field of marine electronics since May of 1987.

I hold the following licenses and certifications:

1) FCC General Radio Operator's License with a Ship Radar Endorsement (Lic. # PG-7-16624, 2/5/1990);

2) National Marine Electronics Association Certified Marine Electronics Technician, certificate #371, certified since 1998

3) Raymarine Certified Installation and Service Technician, Certificate # RAY108

4) Garmin Certified Installer, Certificate # E15239

In May of 1987 I was hired by Langer Krell Marine Electronics, where I am now the Senior Marine Electronics Technician. Over 34 years with Langer Krell, I have developed extensive experience in the installation and repair of marine electronics, including GPS chartplotters such as were removed from Andersson's vessel. I am familiar with their use and features.

**(v) A list of all other cases in which, during the previous 4 years, the witness testified as an expert at trial or by deposition.**

This is my first time testifying as a witness in any case, whether as an expert or as a fact witness.

**(vi) A statement of the compensation to be paid for the study and testimony in the case.**

Langer Krell charged $802.50 for the two joint inspections and will charge $500 for a half day or $1000 for a full day of testimony or any other expert witness services.

The information contained herein is based upon my personal observations, the materials listed above, and my knowledge based upon 34 years' experience as a marine electronics technician.

11/30/2021
Dated

MD Cooley
Michael Cooley
Senior Marine Electronics Technician
Langer Krell Marine Electronics